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DIALYSIS.*

Human ingenuity is advancing the art of chemical analysis with rapid strides. It is becoming no easy matter to keep oneself at all *au niveau* with the discoveries in this department of science. While yet fascinated with the beauties and subtleties of Spectral Analysis, our attention is claimed for another analytical discovery, less beautiful it is true and less subtle, but susceptible of much wider application, yielding results of greater practical value, and therefore possessing more immediate interest to us as medical men. We allude to the discovery of Dialysis, which we owe to Mr. Graham, the present Master of the Mint. It may be fairly described as a kind of royal road or short cut, enabling us to arrive at analytical results previously unattainable, or attainable only by processes far more complicated, far more open to fallacy. Except in rare instances it employs no chemical reagents; it achieves its end merely by availing itself of certain physical properties inherent in the substances to be analyzed. Our readers may possibly welcome an account of the principles of

* "Graham on Liquid Diffusion applied to Analysis," *Royal Society's Transactions* for 1861, Part I. "Redwood on Dialysis," *Pharmaceutical Journal* for April, 1862. Daubeny's Lectures on Agricultural Chemistry," *Gardeners' Chronicle* for December 7 and 14, 1861.

this new analytical process, the mode of its practical application, and the peculiar, valuable results it enables us to attain.

Dialysis may be defined as analysis effected by liquid diffusion—in other words, the separating of liquid substances from each other by taking advantage of their different rates of diffusibility under particular circumstances. Our knowledge of the laws of liquid diffusion was exceedingly imperfect up to the summer of last year, when Mr. Graham published the results of his elaborate researches on this subject. So much of these results as is necessary in order to understand the principle of dialysis, we will endeavor very briefly to explain.

First. There is a great difference in the diffusibility of different substances in the liquid state, just as there is in the gaseous state. If by means of a pipette we convey a solution of any substance (a salt for instance) to the bottom of a jar of distilled water so as to form a distinct stratum, and then leave the jar undisturbed in a uniform temperature, the dissolved salt will always diffuse into the superincumbent water at a certain rate within a certain time. This rate will vary with the nature of the medium into which diffusion takes place; if, for instance, some other fluid be used instead of water. Briefly expressed, the fact amounts to this—that "different substances in solutions of equal strength diffuse unequally in equal times." (Redwood). For instance, common salt diffuses into water twice as fast as Epsom salt, and this latter twice as fast as gum Arabic. Again, if instead of a single substance we convey a mixed solution of two or three substances to the bottom of the said jar, these substances, notwithstanding their mixture, will still maintain their respective rates of diffusion, the more diffusive body traveling most rapidly and showing itself first and most largely in the upper strata of superincumbent liquid. Hence, what in the case of a single body is mere diffusion, in the case of two or more bodies mixed together is a diffusive separation of them from each other. Such separation of them will be more or less complete in proportion to the difference between their respective diffusibilities.

Secondly. Between highly diffusive substances on the one hand, and feebly diffusive substances on the other, Mr. Graham has established some important grounds of distinction. The only one, however, which concerns us at present is this—viz., that the former affect the crystalline condition, while the latter are not crystallizable, and have, further, the peculiarity of becoming gelatinous when combined with water. Hence, highly diffusible substances he classes together as "crystal-

loids," and feebly diffusible ones as "colloids" (from *collin* or gelatine, the type of the class). Among the colloids are hydrated silicic acid, hydrated alumina, and other soluble metallic peroxides, isomorphous with the latter body, together with gelatine, albumen, starch, dextrin and the gums, caramel, vegetable and animal extractive matters.

Now, it is characteristic of the bodies just mentioned that, while they are more or less permeable to crystalloids, they are wholly impermeable to other colloids like themselves which may be in solution. For instance, suppose a layer of firm jelly, or some other colloid of a more convenient nature (such as an animal membrane) to be interposed between water on one side, and a mixed solution of common salt and albumen on the other, it will wholly intercept the albumen, but will allow the salt freely to diffuse through its substance into the water on the opposite side.

It is plain, therefore, that although, as was above shown, simple diffusion into water will partially separate mixed bodies from each other, a far more complete separation will be attained by causing the diffusion to take place into water, not directly, but through an intervening membrane, such as a bladder or sheet of parchment. And this is just what is done in dialysis, which is nothing more than the diffusive separation of crystalloid from colloid bodies through a septum of gelatinous matter, the septum allowing the passage of the one, not of the other. The apparatus needed to conduct this process is the simplest possible. It consists of (1) a basin or deep dish containing three or four inches of pure water; (2) a "dialyser," which is merely some kind of membranous septum secured by a bit of string around a light hoop of sheet gutta-percha, so as to form a vessel like a tambourine. Of all the substances yet used for dialytic septa, the most convenient has been found to be the "parchment-paper" made and sold by Messrs. De la Rue & Co. Care must be taken that it is not porous. The mixed fluid to be dialysed is first poured into the hoop upon the surface of the parchment-paper to the depth of half an inch or so. The dialyser is then floated on the basin or dish of water, into which the crystalloid constituents of the mixture gradually diffuse, the colloid constituents remaining behind. Mr. Graham found that half a litre of urine, dialysed for twenty four hours, gave its crystalloidal constituents to the external water. The latter on evaporation yielded a white saline mass, from which urea was extracted by alcohol in so pure a condition as to appear in crystalline tufts upon

the evaporation of the alcohol. Professor Redwood observes that ordinary septa can oly be used in dialysing aqueous solutions; a septum suitable for dialysing alcoholic or ethereal solutions not having yet been discovered. Some form of collodion, he suggests, may possibly answer the purpose.

The process of dialysis admits of some very important practical applications, to which we will briefly allude. (1). It permits of the isolation of various chemical substances in a state of purity in which we were not previously aware of their being able to exist. For instance, chemists had hitherto never succeeded in obtaining a perfectly pure solution of silica. The solution of it, obtained by treating silicate of soda with hydrochloric acid, was not pure; it always contained a certain quantity of hydrochloric acid and chloride of sodium, which resisted all further attempts at separation. But by subjecting the said silica solution to the process of dialysis, the acid and salt, being crystalloids, diffuse out, while the silica, being a colloid, remains behind dissolved in water and perfectly pure. In like manner, dialysis enables us to obtain solutions of peroxide of iron, alumina, and several other bodies, perfectly free from the salts or other chemical agents hitherto indispensable to their solution. (2). In medico-legal inquiries, it affords a most valuable means of separating arsenious acid and the various poisonous metallic salts from their organic solutions. For instance, let a portion of tissue suspected to contain arsenic be chopped into small pieces, soaked in pure water, and then thrown on the dialyser. At the end of twenty-four hours the arsenic, even if its quantity be infinitesimally small, will have diffused into the external water in a state fit for the immediate application of chemical tests. The poison is thus eliminated free from all organic impurity, and without employing any other agent than distilled water—advantages which any one conversant with the usual processes for separating minute quantities of arsenic will not fail to appreciate. Vegetable poisons, such as strychnine, morphine, and the other poisonous alkaloids, may be separated from their organic solutions in precisely the same manner. (3). Professor Redwood suggests its application to another purpose, viz., "the separation of the more active crystallizable constituents of vegetable substances from inert colloidal matter, and the production in this way of a new class of medicines, containing the more active principles of plants, partially purified, and in the state of combination in which they exist in nature." Such preparations would occupy an intermediate place between

tinctures, decoctions, and extracts, on the one hand, and the pure, active principles which they often contain (such as alkaloids), on the other. The advantages of vegetable remedies in this form would be greater uniformity of strength, certainty of action, and convenience of administration. They would also keep better, and being void of all inert matter they would be *purely* medicinal, which in their present crude state they are not. The difficulties in the way of their preparation would be great, but probably not insurmountable. (4). It affords a partial explanation of certain points in the physiology of animals and plants hitherto involved in much obscurity. (We say "partial" explanation, because, in all the processes about to be mentioned, a *vital* as well as a *physical* force is at work. At any rate, their full phenomena take place only where life is present; they cannot be imitated outside living organisms). Professor Redwood instances the processes of absorption and secretion accompanying the act of digestion. The mucous membrane of the stomach and intestines may be compared to a dialytic septum between the blood on the one side, and the blood-making constituents of food on the other. Dilute liquids taken into the stomach diffuse through, or (as we generally say) are absorbed by, its mucous membrane. The plastic constituents of food, on the other hand, being colloids, "are retained in the stomach, while the act of digestion proceeds under the influence of crystalloids that are dialysed into that organ, and then pass on to undergo new changes connected with absorption, assimilation and excretion." He further observes that "the action of medicines must be considerably influenced by the state in which they exist as crystalloids or colloids. Thus, iron in the state of chloride, sulphate, or other crystalloidal salt, would be diffused through the walls of the stomach; but not so if in the state of a colloid, such as basic chloride or basic nitrate, in which state it would pass into the intestines, exerting its action probably through the entire length of the alimentary canal." When we know more of the comparative diffusive power of different medicinal preparations than we do at present, we shall probably prescribe them with greater success.

Lastly. Professor Daubeny, of Oxford, has shown, very clearly and fully, how and to what extent the principle of dialysis explains certain phenomena of vegetation—such as the transmission of sap through a plant, the separation of its various secretions from each other, and their maintenance in a state of isolation in appropriate receptacles. (1). The sap is

propelled upward through the plant partly by capillarity, partly by atmospheric pressure, owing to the evaporation from the leaves and the partial vacuum thereby occasioned. But it makes its way *into* the plant, in the first instance, by endosmosis through the spongioles of the roots. (2). The particular compounds secreted from the sap in different parts of the plant are maintained in their state of isolation and purity by the same principle of dialysis. The peculiar juices of plants (starch, gum, oils, &c.,) are generally colloids, and therefore have no tendency to pass through the walls of the cells in which they have been elaborated. The different acid and alkaline products, on the other hand, being crystalloids, permeate membrane freely, "but are only temporary constituents or steps in the series of changes which are intended to convert carbonic acid into sugar and starch, and they are consequently got rid of either by exosmosis or else by some other chemical process by which they are converted into glucose or fruit sugar." The principle of dialysis has likewise important bearings on the nature of the ultimate molecules of matter, and on certain geological phenomena. These, however, possess more interest to the geologist and physicist than the physician.—*Medical Times and Gazette.*

CLINICAL LECTURE ON THE TREATMENT OF PNEUMONIA.

DELIVERED AT ST. MARY'S HOSPITAL, MAY 10, 1862.

By THOS. K. CHAMBERS, M. D., Lecturer on Clinical Medicine.

GENTLEMEN: There are three cases of pneumonia under my care in Albert ward this week, to which I have drawn your attention as illustrative of those of the most common phases under which you have to treat that disease in the adult. No. 1. Frank, uncomplicated, double pneumonia, in a temperate, robust man; excessive dyspnœa. Cured by venesection, jacket poultice, food every two hours, wine. No. 2. Pneumonia of upper and lower lobes of right lung, very slight in left lung, in a broken down old man. Cured by

cupping in front, jacket poultice, food every two hours, and wine. No. 3. Congestive pneumonia of one lower lobe in typh fever. Cured by half-jacket poultice, cupping below scapula, food every two hours, wine, and bark.

(*The details of the cases are omitted here to save space.*)

In pneumonia a terribly vital organ is smitten, and so far as the disease extends the destruction is total. A consolidated or even congested piece of pulmonary tissue is impotent to fulfil its functions, and yet that those functions should be fulfilled is essential to animal existence. It is easy therefore to see that the gravity of the pneumonia is in a direct ratio to the quantity of lung involved. The degree or form of the inflammation or condensation is of much less moment, so far as immediate danger is concerned, than the extent of tissue over which it is spread.

Hence comes the importance of having some ready and effectual means at hand of checking the march of the inflammation to fresh parts. If we can do this, we contribute more certainly to the patient's life than if we regulate, however favorably, the progress of it in already affected places. No means is so readily applied, so immediate in its operation, as bloodletting. Its action has not to be waited for, like that of drugs in medicinal doses, but begins at the moment of application. That is a great point where time is so valuable. I believe also that it is the most powerfully effectual of the agents at our disposal, and that, rightly used, it is the saving of many a life in pneumonia.

The beneficial action of bloodletting in pneumonia is mechanical. It is more a question of hydrostatics than of physiology. The pathology of pneumonia is as follows: By the temporary death of a portion of the lungs, the blood cannot be quickly enough passed onwards through their tissue; it can run freely as far as the right side of the heart, but there it is stopped; the throng pressing onwards from behind makes matters worse, and thus the balance between the venous and arterial heart is destroyed. You can feel the apex of the organ beating strongly against the ribs, the muscular action being excited by the presence of an unusual amount of venous blood; yet the artery at the wrist is at the same time striking your finger with an imperfect, weakened force.

Take away some of the blood from the veins, and the balance is restored—the pulse becomes "freer," as the technical phrase is; that is to say, the heart being relieved of the undue crowd in the right side, is not arrested in its contraction, but

is able to close upon its contents, and supply them steadily to the arteries.

The advantage of general and local bloodletting is of identically the same nature, though they differ somewhat in degree, and are diversely applicable. Where the patient was, previous to his current illness, in vigorous health, actively digesting his food, and actively renewing his tissues, he will bear, and easily repair, the detraction of a good large quantity of blood; and a good large quantity of blood is most conveniently drawn from the arm. To get, therefore, the full advantage of the remedy, and be on the safe side, you should practice venesection. But if the pneumonia has come on a person previously an invalid, or in weak health, you fear for the possible bad consequences of your treatment, and you cast about for some means of getting the greatest advantage out of the least loss of blood. This is obtained by cupping the region of the heart. Your six or seven ounces taken from thence, in a delicate invalid, seem to produce a corresponding effect to twelve or fourteen let from a vigorous man's arm. But there are practical inconveniences in cupping to a large amount in this situation. You are obliged to cut deep to obtain a good flow, and deep cuts cannot be stopped easily, but go on oozing unperceived into the poultice which, as I will instruct you presently, is to be put round the chest.

Remember that in letting blood you are wielding a dangerous weapon. While from a mechanical point of view nothing can equal the aid it gives, at the same time its more remote or physiological action is hurtful. The shrewd comedian tells us, "necesse est facere sumptum, si quæris lucrum;" so that if you have gained the inestimable boon of a restoration of balance in the circulation, and a consequent relief of dyspnœa and an arrest of the progress of death in the lungs, you must not complain if some evils attend the process. The mere loss of so much "liquid flesh" is in itself an evil, but a minor one; of greater import is the increased proportion of effete fibrin and water which it induces, the diminution of red globules, and the consequently diminished power to bear up against the destruction, however temporary, of so much pulmonary substance.

Judge, therefore, of the necessity for this treatment by the balance between the heart and the arteries. If the apex of the former organ strikes strong while the pulse at the wrist is defective, act freely and confidently. If, on the contrary, the ventricles are weak while the pulse is full, large, and rapping,

be cautious in what you do, and if you draw blood at all, let it be by cupping the chest.

You will find in some lectures on medicine rules about bloodletting in pneumonia attempted to be deduced from the supposed degree of consolidation of the pulmonary tissue. These rules are singularly foolish and inapplicable to practice. They say you should bleed so long as you know that the lung is in its first stage of consolidation, (*i. e.*, congestion), as indicated by fine crepitation and incomplete dulness; and that you should not bleed after it has once become so completely consolidated as to admit no air into the finer bronchi—a state declared by the sound of coarse crepitation and complete dulness. Such a rule is quite useless at the bedside, and will often prevent your employing active practice in cases where it is urgently required. In the first place, in a majority of cases fine crepitation is masked by the mixture of coarse, produced by the presence of catarrhal mucus in the larger bronchi, especially in the catarrhal pneumonia of young persons. If you wait till you can hear distinctly fine crepitation, you will wait too long. Then, again, the dulness of congestion is not necessarily incomplete, as you may satisfy yourselves by examining a case of transitory congestion in continued fever, which is often very absolute, though it is so transitory that a mere change of position may remove it in twenty-four hours. Then, again, a slight collection of serum in the pleura may make the lower lobe dull at the very commencement of pneumonia, and prevent your bleeding at a very early stage, if you were to follow the rule I quoted. But the most truly important consideration and the most serious objection to the rule is, that you may have all stages of partial tissue-death going on at the same time: one lobe, or one part of a lobe, may have advanced even to yellow hepatization, while another part is entering into red hepatization, and in a condition which most would agree is that capable of benefit from letting blood. Your best guide to the necessity will be the dyspnœa, and your best check, the balance of the heart and arteries, as I have explained already.

Remember now what I told you about bleeding in a former lecture on "Anæmia and Bloodletting"—*be careful to supply material in the place of that which you are taking away.* Let the patient be fed with beef-tea or milk every two hours, just as if he had typh fever. I mention this part of the treatment next to the bleeding to remind you of the close connection which there is between the two, and because of the

immense importance of it to your success, whether you elect to bleed or do not.

I now come to a direct restorative, about the use of which at all times you need have no manner of hesitation. You can always, without any exception of age, sex, condition, cause, or complication, follow a treatment to which I attribute more power of saving the lives of pneumonic patients than to any other, and which you see me apply in all cases; I mean, the enveloping the chest in a large bath-like poultice. The action of warmth and moisture on animal tissues tends directly to increase their vitality. You may *see* with the naked eye a healthy surface of skin under their application renew its life; it empties itself quicker of its pale, livid, venous blood, and glows with a fresh access of the bright arterial stream; it swells up elastically with fresh juices; it is more delicately sensitive when used for the purposes of touch; at the same time it feels no pain, but, on the contrary, an exquisitely pleasurable calm. You cannot see this renewal of life in internal organs; but you may infer that what takes place in one tissue takes place also in another with modifications dependent on distance and other difficulties of application. And you may infer it also from the results; for you find the dyspnœa diminished, the breath being easier drawn in spite of the weight of the poultice; the hot, fevered skin becomes moist and active, and soon the ribs begin to move again and air is readmitted into the previously paralyzed lung-tissue. These effects are the most strikingly shown in the case of infants, whose thin chest-walls are rapidly and efficiently permeated by the influences of the poultice, and in whom also this remedy is the only one really safe and invariably necessary. I cannot speak too strongly of the importance of your adopting it, and letting all other treatment be rather rejected than this directly restorative agent.

The poultice is best made of bruised meal, because that keeps moistest. It should be spread half an inch thick at least, on a cloth or flannel, as broad as the circumference of the thorax. If any portion of the upper lobes is inflamed it is essential, and even if only the lower lobes are inflamed it is prudent, that it should be deep enough to cover the whole chest from the collar bones to the hypochondria. Lay the patient on it on his back, and fold it across the front until it meets. In adults it will usually keep in its place of its own accord; but in children it is useful to have a tape stitched on in front and a tape behind, which you tie over each shoulder

in the manner of a shoulder strap, otherwise the little prisoners wriggle out of their soft breastplates. When once you have got it *in situ*, keep it there, and desire the nurse, on pain of dismissal, never to take it off till another hot one is ready to go on.

In low fever the continuous poultice somewhat stands in the way of the cool sponging. But, in practice, this last important part of the treatment becomes less necessary at the period when congestion and pneumonia occur; the skin has then become cooler and more active. Besides, the poultice often takes its place by softening and suffusing with a gentle perspiration the whole body. I have often had pneumonic patients complain of the way in which it makes them sweat.

Alcohol, especially in the form of port wine, is very useful in treating pneumonia. Even in hearty temperate persons, when you are going to bleed, it is desirable to give a little, as was done in Case 1. A glass of hot negus before the operation makes it safer; and whenever you observe the nervous system prostrated by the extent of the disease, so as to produce tremor of the hands, quivering of the tongue, delirium, dry brown tongue or a tendency thereto, throw in a little wine from time to time. In old persons, especially in the upper classes, who have been used to good living, and in persons of all ages who have indulged too freely in alcoholic liquids (like Case 2), you need not wait for any symptoms as above described, but begin with wine immediately. In children it is not required, and they get well quicker without it.

In the pneumonia of typh fever, position is of great importance. As long as the walls of bloodvessels retain their natural elasticity, they are able to resist the gravitating force which acts, of course, on the blood as on all matter; but when their life is lowered in disease, the elasticity is the first vital property which suffers, and the blood then gravitates towards the lowest part of the viscus. This is especially the case in typh fever. Lay the patient, therefore, on the side opposite to that affected (as was done in No. 3), or even on his face for a time, if both are affected; and thus the very force of gravitation, which you feared as an enemy, becomes a friend, by withdrawing the congestion from the weaker point. This boy was cupped on the side. You need not be afraid of a small loss of blood in typh fever, where an important viscus requires it. A large portion of the vital fluid you take away is poisoned and dead already, and unfit for the purposes of life; so that you are not robbing the patient to the full extent of the quan-

tity drawn. You saw this lad was much more lively after his cupping than before. It is better to draw it locally than generally, because local benefit is expected from it, and not general.

I always abstain from giving purgatives in pneumonia. My reason is, because I have observed that patients who have diarrhœa at the same time generally do very badly; and if natural diarrhœa does harm, I infer that artificial diarrhœa does harm also. I prefer to produce constipation by opiates, where it does not already exist. If the rectum gets blocked up with feces, it is easy to wash it out with warm grnel.

Blisters, also, have seemed to me to do harm in a few cases where I have seen them employed before the patient came under my treatment. It is usually non-medical persons who put them on, under the general idea that they are good for a cough with pain in the chest.

Nothing has been said about antimony and mercury, drugs formerly much used in pneumonia. They are destructives, and I cannot see that there is anything to be destroyed in this disease, or that there is anything whose destruction would aid the employment of direct restorative treatment. When I used them, I was frequently obliged to leave them off on account of bad symptoms attributable to their agency, and I always felt doubtful if success in prosperous cases could be traced to them. But in all diseases which have been under treatment before yours, pray never let a word escape your lips, or a thought dwell upon your minds, about the patient being worse for the means previously employed. Most probably the harm done even by the most unsuitable drug is inappreciable; for a sick man is a tougher animal than we often give him credit for, and will stand a vast deal of faulty physic, and it can hardly be but what some of the treatment has added to his chances of life more than if he had been let alone. Besides, we are all infinitely fallible, God knows, and it is not for us to judge of circumstances we have not seen.—*Lancet*, Aug. 16, 1862.

PREPARATION OF OXYGENATED WATER AND ITS THERAPEUTICAL USE.

Dr. Ozanam gives the name of oxygenated water to water which is distilled and afterwards charged with oxygen under the influence of high pressure. The experiments he has made

have led him to establish three modes of operation by this new medicine. 1. It improves the condition of the blood in cases where that fluid is impaired or deficient, as in dyspnœa, asthma, slow asphyxia, cyanosis, diseases of the heart, hæmorrhoids, and hæmorrhoidal visceral congestion. 2. It possesses an oxidizing or metamorphic action in cases where the organic products are arrested in their development, as happens in glycosuria, gout, the uric and oxalic gravel, and perhaps in scrofula. 3. It exerts an exciting and regulating action on the brain and the thyroid gland, and hence its use in goitre and cretinism. If, in fact, snow-water taken as drink gradually produces these morbid conditions, it is because it is entirely deprived of vital air. On the other hand, oxygenated water, as well as the inhalation of gaseous oxygen, produces no results in hemierania, and unfavorable ones in cases of inflammatory disease. Thus, in croup, the oxygen temporarily tranquilizes the dyspnœa, but it increases the fever. In the treatment of ulcerated cancer the oxygenated water revives pretty well the powers of the patient, and the wounds assume a more vivid and rosy color, but they do not heal; and if the surfaces are bathed with rags steeped in oxygenated water, even when very slightly charged, the ulcer is soon observed to become gangrenous on the surface. Oxygenated water is perfectly limpid and pure, and the gas is disengaged in the form of very fine bubbles. Having little taste, it resembles in this respect water which is deprived of air; and, like the latter, it is a little heavy for the stomach.—*B. and F. Med.-Chir. Rev.*, July, 1862, from *Comptes Rendus de l' Acad. des Sc.*, November, 1862.

NOTES UPON DIPHTHERIA.

By W. F. WADE, M. B., M. R. C. P., London. Senior Physician to the Queen's Hospital, Birmingham, Eng.

1. At the commencement of the present epidemic, being dissatisfied with previous post-mortem examinations, which had been limited to an investigation of those parts whose tissues are continuous with those of the throat, and having noted phenomena which were not thereby explained, I determined,

when opportunity should offer, to examine the state of other organs whose tissues were not so continuous.

2. The first post-mortem furnished me with kidneys (of which I retain a drawing) as much altered in appearance as any that we find after death from scarlatinal dropsy.

3. Obvious pathological analogies led me then to suspect that such a condition would be attended with albuminuria during life. The examination, next day, of the urine of a patient under the care of Mr. Robins, showed that it contained albumen. The frequent occurrence of albuminuria in diphtheria has since been universally recognized.

4. Curiously enough, subsequent dissections have but rarely furnished me with kidneys so conspicuously altered as these first ones. The changes are more commonly microscopical; consisting of crowding and opacity of the epithelium, which is most readily detached and rapidly disintegrates.

5. Casts of various kinds are to be found in some specimens of the albuminous urine of diphtheria.

6. This albuminuria and these anatomical alterations of the kidney are important as showing—

(*a*) That the disease does not spread solely by continuity of tissue, as had been previously believed;

(*b*) That in some cases the disorder has a tendency to migrate; and in such there is more reason to apprehend croup and other complications than in cases where this migratory tendency is not apparent.

7. Albuminaria as a symptom of disease is important from the fact of its being frequently, though not necessarily, connected with and dependent upon conditions which impair the excretory action of the kidneys.

8. In many cases there are indications of diphtherical albuminuria being so associated.

9. These indications are: diminution of the urine in quantity; suppression of the lithates; nervous symptoms—as indifference to surrounding objects, somnolence, coma—coincidently with the commencement of the albuminuria, and not referable to any other known cause but the kidney complication.

10. The commencement of the albuminuria may be attended by an increase of the pyrexia, unexplained by any increase of the local disorder or other efficient cause.

11. These symptoms are relieved by increased urinary exertion.

12. Albuminuria is not necessarily attended by any obvious symptoms of an unfavorable character.

13. An imperfect elimination of urinary elements may be unattended by albuminuria. In one case, and sudden diminution of the urinary secretion without albuminuria was attended by swelling and pain of the carpal joints (rheumatic?) The symptoms described in No. 9 are developed coincidently with this imperfect elimination.

14. I have not observed the early presence of albumen in the urine which, from the concurrent testimony of trustworthy observers, no doubt frequently occurs. Two explanations of this fact offer themselves. In this first place, most of my cases have been seen in consultation, which is demanded in the majority of cases only when fatal symptoms have already supervened. Secondly, my treatment has long been directed to the prevention of kidney complication.

15. Apart from its early occurrence, there seems to be a special tendency to albuminuria about the seventh or eighth day, at which time the disorder has a natural tendency to terminate. Under such circumstances it is to be looked upon as a critical phenomenon. It may occur at any period.

16. Kidney affections commonly precedes other complications, such as croup and purpura.

17. More exact observations upon the amount of urinary excreta before, during, and after intercurrent albuminuria are much wanted. Also in cases where albuminuria does not occur.

18. If there be retention of urinary elements in the system, it is probable that it tends to induce other complications. (See Dr. Parkes' Lectures upon Pyrexia.)

19. I have found specimens (of which I retain drawings) of anatomical alterations of the spleen, which has in some instances been found solidified, and of a pinkish buff color.

20. The microscope showed that in such spleens there was an unorganized, hyaline, semi-solid material filling the interspaces of the trabeculæ.

21. I have also found alterations of the spleen, such as Dr. Habershon has described as occurring in cases of purpura.

22. In no case has manifested alteration of the spleen been found after death where purpura had not been observed during life.

23. Some cases of purpura have been seen in which I could not undertake to say that the spleen was abnormal.

24. There is no constant proportion between the severity of the purpuric symptoms and the amount of splenic change.

25. The vast majority of fatal cases have presented croupy

symptoms in the last stage, but many would probably have been fatal without the croup.

26. In no case that I have dissected was the laryngeal exudation continuous with the faucial.

27. In no case of croup that I have dissected has the exudation failed to extend beyond the bifurcation of the trachea. In most instances it has extended into the minute ramifications of the bronchi.

28. The tracheal and bronchial exudation has varied in consistency from a very firm membrane to a pasty granular layer.

29. In two cases, besides (other?) purpuric symptoms, I found after death nodules of pulmonary apoplexy.

30. In one case I thought that there was some hyaline exudation in the supra-renel capsules. In that case, and in another, these organs were intensely vascular.

31. We are justified by the preceding observations, as well as by other well-known symptoms of the disease, in looking upon diphtheria as a zymotic disease; not as Bretonneau conceived it to be, a local disease, spreading by continuity of tissue, and only affecting the system in a secondary manner.

32. I have never stated, and I am not prepared to state, my opinion upon the relation, if any, between diphtheria and scarlatina.

33. To those who find less difficulty in coming to a positive conclusion upon the point, I beg to recommend the following considerations:

(*a*) Scarlatina and diphtheria may be associated.

(*b*) Scarlatina is not necessarily accompanied by efflorescence, or by noticeable fever.

(*c*) Diphtheria may probably affect the system without producing any throat exudation.

(*d*) Scarlatina may recur.

(*e*) Certain forms of scarlatina may be *accompanied* by albuminuria.

(*f*) Scarlatinal albuminuria does not necessarily produce dropsy; dropsy, in fact, is the exception in albuminuria *accompanying* scarlatina.

(*g*) Any occasional form of a specific fever may become the type of an epidemic.

(*h*) Granting that scarlatina and diphtheria are both zymotic disorders, we do not know what is the nature of their respective poisons.

34. Local treatment exerts no known influence upon the general course of specific fevers.

35. The true rule of practice in such diseases is to obviate the tendency to death.

36. The tendency to death in diphtheria is sometimes by asthenia, directly induced by the blood-poison; sometimes by complications, of which the earliest is generally a kidney affection, interfering with urinary elimination. We must therefore eliminate the poison, and if possible *prevent* the complication.

37. In pyrexial disorders, one of the most constant and mysterious phenomena is the quantity of water disposed of by the system. (See Parkes on Pyrexia.)

38. In diphtheria the quantity of ingesta will be commonly small if the patient be allowed to consult his own convenience.

39. Water is essentially necessary to the performance of the urinary functions.

40. Concentration of the urine is equivalent to kidney irritation.

41. Diphtheritic albuminuria is often preceded by urine of high specific gravity. The supervention of albuminuria may fail to produce this.

42. It is often preceded by deposit of lithates, showing a comparative paucity of the urinary water.

43. All plans of treatment which have been adopted on the large scale for the treatment of diphtheria have embraced the ingestion, in large quantities, of fluid nutriment as an important if not essential element.

44. By the copious administration of pure water or diluents in diphtheria, the urine may be enormously increased in quantity, often without corresponding diminution of its specific gravity.

45. This seems to indicate that the detritus of interstitial metamorphosis had been previously insufficiently eliminated.

46. I recommend the ingestion of bland fluids in as great quantity as the patient will take; half a pint every hour or two, if possible, in the case of adults.

47. To avoid chills, I recommend that in all cases the patients should be clothed from head to foot in a flannel gown, and kept in bed. I believe that the adoption of this plan would have saved almost innumerable lives.

48. Assuming the presence of a substantive poison in the system we know no drug which will act as a direct elliminant but iodide of potassium. It positively eliminates lead, and we may presume that it positively eliminates syphilis.

49. I employ iodide of potassium in two, three, or four grain doses every two or three hours. I have been in the habit of conjoining with it chlorate of potass in five to ten grain doses.

50. I have known no instance of a fatal termination where this plan of treatment had been carried out. I have known no instance of serious symptoms or of secondary paralysis supervening where this plan had been rigorously carried out. The difficulty, especially with children, is in ensuring a copious supply of fluid.

51. This plan exercises a speedy and salutary influence upon the general symptoms of the disease. The exudation often diminishes with extraordinary rapidity. Essential fevers run a definite course, and can be rarely if ever cut short. Till the disease has gone we cannot be free from the danger of complication. Hence the immense importance of continuing the treatment after immediate relief has been obtained.

52. Aqueous injections may be employed to supplementalize ingestion by the mouth; but this is a plan of very inferior efficacy. If deficiency of urine be present, bitartrate of potash, sinapisms to the loins, warm bath, and solution of acetate of ammonia help to restore it.

53. This general plan of treatment does not preclude other remedies in special cases, or to meet special indications.

54. Where it has been carried out I have not found a necessity for stimulants, nor have I found that these, when administered, have produced that immediate and sensible (even if incomplete) amelioration that we expect to see in cases where they have a beneficial influence.

55. The same may be said of tonics and iron. I have never met with such marked anatomical alterations as in cases which had been freely treated with a mixture containing muriated tincture of iron and hydrochloric acid. It does not necessarily follow from this that such remedies may never be required; but they should not be used indiscriminately and recklessly.

56. It is contrary to the ordinary rules of our art to interfere with the local development of blood-poisons, except for special reasons.

57. The faucial exudation of diphtheria is to be considered as the local manifestation of a general disease.

58. Interference with it will not prevent its reproduction, nor will it prevent laryngeal complication, nor will it prevent the supervention of grave constitutional disorder. It is exceedingly irksome to young patients.

59. We are justified in interfering with the throat exudation when there is excessive fetor, or when it is so copious as to interfere with respiration or deglutition—not otherwise.

60. If the croup always extend below the bifurcation of the trachea, tracheotomy is but a forlorn hope; as such it may be right to resort to it in some cases.*

61. I am not satisfied with that explanation of the secondary paralytic affections which attributes them to reflex irritation. Possibly minute dissection might discover some organic change in (*a*) the nervous centres, (*b*) the nervous periphery, or (*c*) the muscular tissue.

62. Albuminuria may or may not be present in cases of diphtheritical paralysis.

63. Cases of paralysis progress so slowly when treated simply by quinine and other tonics as to lead to the supposition that these drugs exert no direct influence upon this sequela, which probably in such cases wears itself out.

64. I believe I have obtained more speedy results with eliminants—as iodide of potassium, iodide of iron, and bichloride of mercury with bark.

65. Blisters to the top of the sternum, if applied early, seem to exercise a most beneficial influence upon the paralysis of the palate.

66. Paralysis may follow, as kidney complication may attend, slight as well as severe cases of diphtheria. In one case I have heard that the paralysis has lasted two years, and may be considered permanent.—*London Lancet.*

* According to M. Roger, twenty per cent. of the children operated upon at the Hospital des Enfans Malades in Paris recover.—*Archives Generales de Médicine, April,* 1862.

ORIGINAL COMMUNICATIONS.

FOREIGN BODY IN THE AIR PASSAGES—SPONTANEOUS EXTRUSION AFTER 108 DAYS.

By JOHN SWAIN, M. D., Ballardsville, Ky.

On the morning of Oct. 5, 1862, I was called in haste to see Oscar Barnhill, aged about 9 years. The messenger saying he had swallowed a tack. On arriving at the house, the little patient informed me, that having the tack in his mouth, while looking up at a map upon the wall, he swallowed it; that he felt it scratch in its passage, all the way to the pit of his stomach.

He had already vomited on the hearth, but was confident he had not thrown it up, for he still felt it in his stomach. I caused him to swallow a raw egg, and in some ten minutes gave him an emetic. In the mean time, I manipulated and auscultated the trachea and examined the chest, believing that it might be lodged there rather than the stomach; I discovered a wheezing in the upper portion of the trachea, extending a little below the cricoid; was informed that he had a cough for some days; he coughed occasionally, but not as frequently as he should with a foreign substance in his "windpipe;" pressure upon the trachea gave no evidence of its location. He vomited some four or five times, gave up his breakfast, and, I believe the entire contents of the stomach, but no tack. I again auscultated for some sign, but found nothing more than the wheezing as above. I sent for my friend, Dr. Wells, determining to perform laryngotomy, if upon canvassing the symptoms, we could fix the point of lodgment within surgical reach.

By the time of the Doctor's arrival, he had recovered from his fright and the effects of the emetic, and there being little or no disturbance in his respiration more than the cold might produce, after another careful examination, we concluded the child might be correct in his relation of its passage to his stomach, and that he left it in the ashes with the first emeses. We consequently (and wisely, as the result proves,) determined not to interfere, but leave the doubtful matter to nature, as the safest course. He immediately got up and went about his usual amusements.

He attended school from that time regularly, with no inconvenience, save a slight hacking cough night and morning, and an occasional wheezing upon extra exertion, (from which he was relieved by a few moments' rest,) up to the morning of the 26th day of Jan., 1863, 108 days from the time of inception, when, while in bed, by a violent fit of coughing, he expelled upon the bed-clothing, the identical tack, enveloped in bloody sputa; calling to his father, "here it is, here's the tack."

I have it in my possession, a hoe shaped saddler's tack, 6½ lines in length, with a head measuring upon its face 2½ by 2 lines; I say hoe shaped, the shaft being attached to one side of the head.

If the above hastily written narrative should appear to you worthy, you are at liberty to use it, and attach such remarks as may suggest themselves.

PROLAPSUS OF AN OVARY.

By L. R. HOLMEAD, M. D., Chicago.

On July 21, 1861, I was called to see Mrs. B——p, aged 30 years, who has given birth to six living children, and had seven miscarriages. Her general health has been bad for

several months. I found her in great pain, which she described as a bearing down in the lower part of the abdomen, and more severe than any labor she had ever passed through.

About six weeks previous she had a miscarriage, with considerable loss of blood; and was just getting about. Her bowels being costive, she had the day before taken some cathartic medicine; and while at stool, felt something give way, which gave her such great pain that she could not help screaming. After taking a dose of opium she went to bed and was easy until the next morning, when the pain returned, with a constant desire for a movement of the bowels, but from the distress it gave her she was compelled to resist the inclination.

Fearing a misplacement of some of the organs of generation, I requested an examination, which she declined; I concluded to place her upon full doses of Opium, and Ol. Terebinth, gtts. viij, every 3 hours.

22nd—8 A. M. Pulse good. Tympanitis subsiding. Passed a comfortable night. Continued treatment. 10 A. M. Pain returned. Pulse very frequent and weak. Abdomen distended enormously. To the former treatment ordered warm fomentations, which gave some relief. Declined attending the case longer unless an examination was granted me, or, the privilege of calling counsel. Her husband suggested Dr. ———, and stating if we could not agree, that Dr. ——— should treat the case, and that I should continue my visits, and be released from all responsibilities. Dr. ———, upon making an examination, pronounced it an abscess in the cellular tissue between the Rectum and Vagina, just below the Os Uteri. I asked him how an abscess could cause such sudden trouble, he gave me no definite answer, but said that there could be no mistake about it, as he had had at least a dozen such cases that season. He described it as being a hard, immovable tumor, and thought that he could detect fluctuation.

Not being satisfied with his diagnosis, I yielded the treatment of the case to him, and continued my visits. He ordered the following: ℞. Quinine Sulph. ʒ ss.; Ext. Hyoscyami,

gr. xv; Ft. Pil. No. 15; S. one every two hours. Warm fomentations to be continued.

23rd—Continues about the same. Treatment continued.

24th—No improvement. Dr. ——— ordered ℞. Hydrarg. Chlo. Mit. Pulv. Opii. a a gr. v; Pulv. Ipecac, gr. iv; M. Ft. Pil. No. 10; S. one every 3 hours.

The same course of treatment was continued until the 29th, Dr. ——— visiting the patient in the mean time. No improvement in condition of patient, except occasional relief from pain for a short time. Dr. ——— expecting every day that the abscess would be in a condition to puncture.

Mr. B——p becoming dissatisfied, I proposed to Dr.——— to call counsel, which he thought not necessary, and stated that he was positive that he felt fluctuation, and that the abscess would break in a day or two.

He ordered: ℞. Hydrarg. Chlo. Mit., Pulv. Opii, a a gr. v; M. Ft. Pil. No. 10. S. one every 2 hours. ℞. Liq. Ammoniæ; Ol. Terebinth, a a ℥j; Ol. Olivæ ℥ij; M. S. use as a liniment over the abdomen.

30th—4 A. M.—Mr. B——p called upon me, saying something must be done for his wife, as her sufferings were greater than ever, and wished me to take the case in my own hands; which I declined, but proposed calling in Prof. J. Adams Allen, who was thereupon invited to see the case the same day. On digital examination, he found the hard tumor in the position above indicated. From its mobility, and the history of the case, suspecting its true character, after manipulating for a few minutes he had the pleasure of feeling it disappear from before the fingers, with immediate relief to the patient.

She was ordered a mild saline laxative and a pill of Hyoscyamus.

The laxative operated readily, but there was no further occasion for the pill. The patient convalesced immediately. Since, she has, upon two or three occasions, experienced some recurrence of the original difficulty, but a few hours confinement to the recumbent position has been followed by complete relief.

The right ovary, enlarged and heavy, had prolapsed into the recto-vaginal space, thus presenting to digital examination a well defined tumor.

The rarity of the accident, and the ease with which it was relieved, seem to render the case worthy of record.

The apparent fluctuation possibly depended upon a cyst in the ovary.

Similar cases are referred to by authors: (Vide Blundell Dis. of Women, p. 108. J. B. Brown, ditto, p. 179.)

The ultimate prognosis of the case is, of course, doubtful, as the displacement may recur at any time, or result in oppressive, or even fatal growth of the ovarian tumor.

A FREAK OF NATURE IN AN ENTIRE FAMILY OF CHILDREN.

AN IMPERFORATE OS UTERI.

By M. M. EATON, M. D., of Peoria.

April 23rd, 1862, was called with Dr. Hamilton, to go to Fond du Lac, in Tazewell County, to amputate a lot of supernumerary toes and fingers.

We found our friend with a family of three boys, all of whom had been born with six fingers on each hand, and six toes on each foot. Two of the boys had previously been relieved of their superfluous fingers. Six toes to a foot on all of them still remained, and caused the feet to be so wide that common shoes could not be worn, and made the feet look quite awkward. We administered Chloroform, and removed all the supernumerary toes and fingers, the wounds healed well, and left useful and well shapen feet and hands.

The father and mother were both well formed and healthy, and they told me that they never had known of any of their relatives having had any deformity of any kind.

Truly, there are many works of what is called nature, we, short-sighted mortals, cannot explain.

And this reminds me of the case of a married lady who consulted me last fall, on account of never having had the menstrual flow in her life. She said she had been married three years, was 19 years of age, lived several miles up the river in a small village; was a native of Ohio. Her mother, who came to the city with her to consult me, said she had never had her courses, and she wanted I should bring them on, if possible. I told her that I never prescribed for a case without knowing as much as possible relative to it, when there might be doubts whether she were well formed, I therefore, requested an examination; to which assent was given, adding that "she had been treated by several physicians in her place almost continuously, for the last four or five years, but no one had asked an examination." By examination, I ascertained that the breasts were undeveloped, and by examination found that the hair on the Mons Veneris was absent, and also, that her vagina was perfect. By the speculum, on most careful search, no opening into the womb could be found, although the womb was of usual size. I called in Dr. Frye, who verified my diagnosis. I told Mrs. H., although she was well formed (with this exception) I thought no operation was called for, and that the less medicine she took the better.

I believe in her case there is an absence of the Ovaries as well as an imperforate *Os Uteri;* otherwise, I should advise differently. A little reflection on this case will show how a false modesty on the part of a physician, or his patient, may sometimes be the means of great embarrassment and want of success with the former, and much trouble and unnecessary expense, and often positive injury to the latter.

EDITORIAL AND MISCELLANEOUS.

THE PREVAILING EPIDEMIC IN THE NORTH-WEST.

MESSRS. EDITORS:—An epidemic has been and is still, to some extent, prevailing in this vicinity, that I should like very much to have your opinion on, and suggestions in regard to, either by letter or through the columns of your "Journal." I diagnosed it, Cerebro-Spinal Meningitis, and I had able counsel who concurred. But that you may judge for yourself, I give you the symptoms. The disease is ushered in with a chill, or shivering, which, the patients say, is not like an ague chill, but a shivering without much sense of coldness. The chill is preceded by intense pains in the head, back of the neck, and in various parts of the body, but occasionally in one of the extremities only. The pain and aching continues with greater or less severity throughout the course of the disease. The chill in some instances lasts twelve hours, but in most not over three or four. Violent vomiting soon sets in, and continues for about twenty-four hours; provided, the patient survives so long. Constipation very obstinate. In some cases, it is impossible to get an evacuation per rectum by cathartics introduced into the stomach. Extremities cold as clay, and very difficult to warm for a day or two. Pulse weak, but not much accelerated. Tongue little, if at all coated, but of a peculiar purple or livid color, at first, but in the course of the disease becomes covered with an "ashy" colored coat. In twenty-four or forty-eight hours, sometimes less, an eruption appears; on the face, looking like measles, but on other parts of the body the spots are much larger and extremely sensitive, the slightest touch often causing the patient to awake from a

sound sleep with a cry of pain. In a few days the patient becomes sore all over, and the joints so stiff, that it is with great pain that he can be moved at all. In some cases, the spots, at first, are of a dark purple, almost black color, in others scarlet, but soon turn dark; these are the most favorable cases for recovery. The pupils are dilated, the left one most, and generally the right side is totally or partially paralyzed—some patients become deaf, dumb, or blind, or all three together, and one, though convalescent for over two weeks, cannot yet speak. Most of those attacked are delirious, but the delirium is not active. Out of thirteen cases treated by myself five died, and another died without treatment. There have been no new cases for more than a week. Death occurred in less than twelve hours in three of the cases. The treatment was actively stimulant and tonic, irritants to the spine, in two cases blisters—and bathing with hot brandy and capsicum. The result was not very flattering, but my experience has brought me to the conclusion, that the only hope of saving life, as the disease occurred here, is prompt, active and powerful stimulation, followed with tonics. The locality in which the disease occurred is on rolling prairie. With one or two exceptions, those attacked did not have chills last fall, so that lingering intermittents could not have been the cause of the attack.

There have been more rain and mud here this winter than for many years. The consequent dampness of the atmosphere may have been an exciting cause.

Yours respectfully,

BOSWELL WARD.

This is one of a large number of letters received on the same subject during the last season. The accounts given by correspondents are very similar, although the incursions of the disease have been observed over not less than five States of the North west.

Of it, very little is found in the text books—nevertheless, it may be said to be well known to many in the profession. Well

known to the extent at least of diagnosis—unfortunately, not yet very well known so far as reliable therapeutics are concerned.

It occurs both in the sporadic and epidemic forms. Of the former, several well marked cases have been brought to our notice in this city quite recently; of the latter, many of the interior towns have afforded sad evidences.

Although having the termination *itis* to its technical appellation, it is far from being an inflammatory affection, in the ordinary acceptation of the phrase. There is a modification of the nutrition in the cerebro-spinal substance, with often resulting destruction of the tissues, but the changes are more like those ensuing in typh diseases or cholera than active inflammation.

In observing the phenomena presented, we can scarcely avoid the belief that they are caused by some specific *materies morbi*, and yet it is pretty clear that this must have been generated within each system by coincidence of external causes operating upon it. The causes operating without—the poison generated within. Particular stages of the disease present phenomena strikingly like those resulting from uræmic poisoning.

According to our own observation, it is more likely to occur in winters with a variable temperature—where a few days of intense cold are rapidly followed by days of thaw, mud and rain. Neither uniformly cold nor warm weather are so likely to engender it.

It does not seem to select those previously debilitated by disease in preference to the robust. It does not select any particular age or sex, neither are any exempt. Nor does it seem to be influenced materially by localities—those upon the highlands and those upon the lowlands—the rich and the poor are quite impartially seized.

The methods of attack are various, and yet all coincide in representing a potent influence upon the nervous system. More commonly, this is manifested by distinct *rigor* gradually

passing to general coldness, absence of pulse in the extremities and coma, very like that of pernicious remittent; and this without any marked local symptoms.

At other times, *pain* is the prominent symptom—pain more frequently in the occipital or nuchal region, but very often in other parts of the head, in the shoulders, trunk, hips or extremities. This pain is usually sharply circumscribed within a small compass, but may extend. It becomes more and more intense until the patient grows delirious, apparently from its severity, and then ultimates in coma, after which the disease takes the same course as when ushered in by the chill. Or it may speedily be replaced by the rigor.

The *suddenness of the attack* and rapid progress to grave symptoms, are very characteristic.

The delirium which ensues upon the pain, or which supervenes upon the coma, is of the most violent character, incessant jactitation, and often vociferous and incoherent cries.

Sometimes at the very outset, but usually not until the lapse of several hours, from three to twenty-four, there occurs a peculiar discoloration or eruption upon the surface, but exceedingly variable in its form. Sometimes it consists of a simple petechial point, and again of a dark discoloration of a large surface like ecchymosis, or rather the subcutaneous extravasation of purpura. More frequently there is no elevation of the cutis, but occasionally there is an elevation of the epidermis, like bullæ, with thin, dark sanious contents.

We have never seen it look like the eruption of measles, as suggested by our correspondent, but very often somewhat like the mulberry rash of continued fever.

The form of the eruption is not diagnostic. Mainly, the evidences presented by it are those of a diffluent, disintegrated state of the blood. The prognosis is modified by the brightness or lividity of the hue of the discoloration.

The eruption, or discoloration, is not always present, but so frequently as to well entitle the disease to its popular name, "spotted fever."

Among the most remarkable symptoms may be mentioned the persistent tonic contraction of the muscles of the back of the neck, sometimes deepening into opisthotonos; convulsions; paralysis, particularly of the optic and auditory nerves; remarkable soreness of the surface and joints to touch or motion.

There may be intolerance of light and sound, but oftener the special nerves involved are paralyzed. While there is the most excruciating hyperæsthesia of the general surface, the finger may be placed on the cornea with no flinching by the patient.

The vocal muscles may be paralyzed, as also those of deglutition, but these forms are more rare. Hemiplegia is not infrequent; or the paralysis may be confined to a single extremity. Strabismus, unequal size of the pupils, twitching of the facial muscles, &c., &c., are incidental symptoms.

The pulse, at the outset, is small, thready, tremulous, irregular, soft, and speedily lost at the wrist. On the occurrence of reaction or remission it increases in fullness and force. About always during the primary stage it is slower, but during reaction it may run up to 120 or 150.

The skin in most cases is dry as well as cold, but in perhaps 25 per cent. of the cases it is moist. In all cases it is quite variable in this respect at different hours of the day.

The tongue is more or less enlarged and flabby, with indentations of the teeth upon its edges. It is pale and moist, with a coating of a pale ash or white color passing to yellow and brown, but this is not distinctive.

Nausea and vomiting are occasional, but not constant symptoms, the matters thrown up being the normal contents of the stomach, or, in bad cases, decomposed blood, bile, mucus, &c.

The bowels are variable. Some cases are natural, in others there is obstinate constipation, and in others still, severe diarrhœa with discharges of grumous and offensive matters.

The respiration is ordinarily laborious and irregular, sighing, and perhaps stertorous, more frequent than normal, while

consciousness continues, but becoming slower with advancing coma.

The urine is generally scanty, depositing a plentiful sediment intermixed with ropy mucus, and disorganized blood corpuscles. But in some instances, we have known the urine abundant and of low specific gravity.

The first stage may terminate in death in a few hours or, after an interval of from six to twenty-fours, then may occur a marked remission of the symptoms—a very deceptive remission, leading both physician and patient to believe the difficulty pretty much over. Supervening upon the remission rapidly, or it may be upon a gradual awakening from the comatose state, there will be intense febrile excitement, great heat of the surface, rapidity and strong tension of the pulse, arterial throbbings, flushed face, turgidity of the conjunctiva, with extreme thirst, &c. This is liable to be attended with the highest grade of delirium and frantic muscular jactitation, requiring several attendants, perhaps, to keep the patient in his bed.

The delirium may, after a while, merge in coma, apparently from utter exhaustion; or it may gradually moderate in violence and pass into the low muttering character, with subsultus, &c., the patient being laid upon his back with the extremities fixed and painful to touch and motion; or in some cases turned rather to the prone position, with, in either case, the posterior muscles of the neck fixed rigidly, drawing the head strongly backwards. Occasionally it is drawn laterally backwards, but is always in a state of rigid immobility.

In this stage the bowels are usually inactive and the urine either scanty or wholly retained. The skin is hot, but not infrequently reeking with a peculiarly offensive perspiration. Irregular or partial sweats are very common. Convulsions, paralysis, pain, and other evidences of central nervous disorder, are largely aggravated.

The patient may die in this stage, or the disease may pass on with irregular febrile phenomena into the low, lingering

typhoid stage, stretching over even forty or sixty days before the establishment of a tedious convalescence. The low fever which so often supervenes upon severe attacks of Asiatic Cholera much resembles it.

From the outset there will be presented intermingled symptoms, according to the involvement of particular organs in secondary lesion. The lungs are especially liable to severe or even fatal disorder, so much so indeed, as by the gravity of its manifestations almost entirely to mask the original disease.

Dr. Condie, in a note to the American edition of Watson's Practice, includes a description of this form under the head Typhoid Pneumonia, but it is unnecessary to say that the disease described is but the one now under notice with secondary complication. Ulceration of the throat, the writer has observed as a complication in several cases—the destruction of tissue proceeding of itself to an alarming extent.

Above all, Erysipelas is the most dangerous of complications. It is easily kindled upon the slightest abrasion of the surface, and often, without such a nidus, attacks the face and neck, extending to the scalp, or more rarely seizing the extremities. This erysipelatous affection is apt to be exceedingly destructive to the part attacked, giving rise to foul, slough ing sores, rapidly wearing out the patient by exhaustion.

Some of our friends who have observed this frequent concurrence of erysipelas, have been so struck by it as to believe the disease essentially an erysipelatous inflammation of the cerebro-spinal tissues, as also of those organs involved secondarily.

The abdominal viscera sometimes experience the full force of the morbific influence, but in greater part are comparatively little disturbed.

Epistaxis, hæmatorrhœa, hæmatemesis, and hæmaturia are occasionally present to a dangerous extent.

Among the sequela we note, deafness, blindness, partial paralysis of motion, tuberculosis, albuminuria.

Marasmus in both children and adults, and phthisis in the

latter are especially common. The constitution seems broken down, and perhaps years elapse before the patient recovers his original vigor.

With regard to *post mortem* appearances there has been much apparent discrepancy of description. But by attention to one single fact this can readily be explained, and that is, the stage of the disease at which death occurred. It is also necessary to separate incidental complications from the primary affection.

If the patient die in the first stage within a few hours from the attack there may be very few signs of local change. The blood will be found settling to dependent portions, and with a loose, gory and diffluent clot. There will be found stasis of blood in the capillaries of the cerebro-spinal meninges, particularly the pia mater and dura mater, rarely of the arachnoid. The superficial vessels of the convolutions will be distended, and those upon the walls of the ventricles likewise full, presenting here and there spots like ecchymosis, though more florid in hue. Sections of the cerebral substance will show a similar condition of the bloodvessels, as manifested by the large red points on cutting across them. The medulla oblongata and spinal meninges and cord at the upper part will exhibit similar appearances. The stasis of semi-dissolved blood is so considerable that the grey and white tissues gain a pinkish tinge.

More or less circumscribed softening is found, usually involving the cortical substance of the cerebrum, the inferior surface of the cerebellum, and the floor of the lateral ventricle. In fine, a lessening of the firmness and density of the whole mass is evident on careful inspection. Effusion of discolored serum into the cavities is present now and then to a large amount.

If the case has run on to high reaction, all the results of inflammation may be present. In this case, the arachnoid is apt to be thickened and with loss of its transparency. In the exuded matters are found pus and lymph corpuscles, or the

exuded lymph forms a quasi membrane, loose, creamy, and readily broken down, upon the surface or along the course of the large vessels. The greatest quantity is at the base of the brain, and always at the optic commissure. It is also stated to be found on the corpora quadrigemina, the medulla oblongata and around the third pair of nerves where they penetrate the arachnoid membrane. Wherever the exudation takes place it is likely to be stained by the dissolved hæmatin.

In the spinal region, the morbid changes affect mainly the meninges, the substance showing little modification of structure, the most observable change being softening. The exudation, discoloration and softening are most observable about the roots of the cervical nerves.

The thoracic and abdominal lesions present nothing distinctive. Where the lungs become involved there are the ordiary evidences of stasis of blood and effusion, or where the later stage is reached, the usual results of inflammation. The same remark may be made with regard to the intestinal tube.

It is proper to remark, that whilst in about every case there is on *post mortem* some visual evidence of local disease of the cerebro-spinal region, nevertheless, in very many this evidence is very slight. The disease is capable of killing the patient speedily or slowly, and yet leaving behind it no trace of its footsteps. But the only constant changes, when any are present, are in this region. Here, as elsewhere, the facts teach that the immediate molecular changes, upon which life and death depend, are beyond the sphere of either our aided or unaided observation. We necessarily infer their existence, precisely as we infer the reactions of a chemical mixture by observations of results and of things which we can see and handle, and weigh.

In common with many other potent influences which suddenly strike down the powers of life—the cause or causes of this terrible disease may produce at once necræmial symptoms, so profound, that particular manifestations of the special cause will not take place. We shall see that thus far the diagnosis

is not of great importance. Under this condition the most dissimilar causes coincide in effect. Malignant typhus, small pox, scarlatina, rubeola, diphtheria, Asiatic cholera, erysipelas, pernicious remittent, uræmia, &c., &c., are severally capable of producing this condition.

In this case, an overwhelming cause acts especially upon the cerebro-spinal centre, or, secondarily, upon other organs. The blood from the beginning is poisoned and scarce living, and death may ensue from this poisoning of the blood, or later from the local changes in the brain and cord, or in other instances, from involvement of other vital organs. The only forms of disease with which it is liable to be confounded are pernicious remittent (congestive fever) and typhus.

Yet, be it observed, in the progress of both these forms, cerebro-spinal changes may occur which render the diagnosis impossible; and this need not be deemed unfortunate, because at the same time it is unnecessary. Since enlightened medical men have ceased to regard diseases as entities, and no longer rely upon a routine treatment, the diagnosis of names has yielded place to the search for causes and conditions; and treatment has been placed upon a broader and more certain basis.

The reader who has carefully noticed the peculiar disturbances of the nervous system and muscular apparatus portrayed in the communication of our correspondent, and further designated in our own remarks, cannot fail to see that they are exceedingly rare in the so-called congestive fever of "malarious" districts. There is no periodicity about it. It cannot be merely a severer form of that fever, for it occurs in districts, indiscriminately, where that fever is known and where it is not. It occurs at a season of the year when pernicious remittent notoriously loses its virulence, and, indeed, is scarcely ever present save in cases which have been especially liable to attacks of periodical disease and whose constitutions have been broken down by previous disease. Briefly, the paralysis of special sensation and voluntary motion; the hyperæsthesia

of the surface and joints, or circumscribed localities; the opisthotonos and convulsions; the petechiæ and vibices; the absence of periodicity, notwithstanding remarkable remissions; locality and times of occurrence; the sequela; these and many other particulars distinguish the disease from "congestive fever" with no difficulty or uncertainty. The influence of Quina is wonderfully diagnostic. In pernicious remittent it is prompt, powerful and certain. It is *the* remedy, if all others were ignored. In the disease under review it is scarcely noticeable in effect, and wholly unreliable—nay—comparatively worthless as a remedy. The "congestive fever" bows beneath its potent influence at once—the "spotted fever" scorns its impression.

Practically, the *physiognomy* of the two diseases is as diverse as the features of strangers.

Nearly the same distinctions separate it from "maculated typhus." It is not a severer form of typh disease, because it is rarely developed under those known circumstances which develop the latter. The nervous manifestations at the outset are wholly diverse; the mode of the attack and progress of the case are dissimilar, save that in some cases a low fever follows the primary lesions; but well marked, and indeed some of the very severest, cases are arrested and convalescence occurs without any such secondary fever.

The eruption, or rather extravasation of dissolved blood beneath the skin, is wholly unlike the maculæ of typhus or the roseolar spots of typhoid. Such extravasations do not constitute the peculiar eruption of the typh disease.

Typh fevers are the creation of *ochlesis*, of bad ventilation, filth and improper food. This clearly depends on some unknown meteorological influence, entirely apart from the accumulation of human beings in crowded places; independent of decomposing organic matter; independent of confined air.

It attacks equally all ages, from the infant to the veteran—the out-door laborer and the lady in the parlor.

Presenting some symptoms in common with the typh dis-

eases, its history and its *physiognomy* are as diverse from them as yellow fever is from bilious remittent. To confound them under one denomination, will render it necessary to re-write the history of typhus and make the term as comprehensive as the word *fever*.

It would be a happy circumstance if the treatment were as satisfactorily determined as the character of the disease. But, as before remarked, this is unhappily not the fact. But much can be done, and many lives saved which without it would certainly be lost.

The proportionate mortality in the early periods of this, as of other pestilential epidemics, is something frightful to contemplate; but there always remains this well established fact that, under about any respectable treatment, the fatality steadily diminishes with time, and the later cases will be quite controllable.

The quacks outside and inside the profession take advantage of this truth, and all ears are speedily stunned by the praises of particular remedies and methods which they go around braying about. "Specifics" for it are as plentiful as for cholera in every city, village and hamlet—but, alas, they fail miserably in the real trial.

Under our own observation has come treatment which ought to make all classes of created things, from angels to jackasses, weep.

We have seen men try to bring on a crisis—the *death-crisis* to which we alluded last month—by bloodletting. Others attempt the same thing by emetics and mercurial purges. Steaming is perhaps the most popular method of producing exhaustion of the feeble remaining powers of life. We knew one physician to give upwards of fifty grs. of morphine to a boy within a few hours to relieve his terrible pain and suffering. He observed to the writer that "the boy did not die of the disease!" Incalculable quantities of brandy and quinine have been ponred into the stomachs of the comatose; and there is no measurement of the amount of turpentine which has been thrown up *per rectum*.

The whole surface has been parboiled, roasted, and cauterized—What have we not seen done? We have seen the patient wrapped in the skins of animals torn reeking from the still quivering flesh; and have known an ox disembowelled and a tender girl put in the steaming cavity. There is no limit to human credulity—there is no bound to human assumption. Popular follies are the legitimate offspring of the dogmatic wisdom of some previous age.

Satisfactory treatment remains yet to be discovered. There are no specific remedies as antidotes. Yet experience points to certain things which seem to have done something—perhaps, *post hoc ergo propter hoc* after all.

And first we rank external stimulants. Rubefacients and artificial heat. Whatever will powerfully stimulate the surface, especially along the spine and the extremities. This not from any vague idea of internal pressure to be overcome by "determining to the surface," but by promoting tissue change in the parts and thus awakening energy of the circulation, and immediately excretion of effete matters and formation of new blood. The rubefacient becomes thus a general stimulant. With capsicum and mustard, ammonia and terebinthinates, pungent oils and friction—the means are abundant enough, and the practitioner can take his choice. Direct heat is a more questionable remedy from its ultimate sedative impression. The hot water or vapor bath speedily exhaust—still, when the surface is dry and rigid, these may be employed for a short time only. The alcoholic vapor bath is often serviceable. A potent stimulant is the application of ice for a few moments and then the alternation of hot epithems—this alternation to be frequently repeated. The intense local pain so often present in the primary stage may occasionally be controlled by large doses of morphia internally, but the amount required is apt to be so excessive that the hypodermic injection at the point of suffering will be found of greater advantage. But from the puncture there is always danger of erysipelas. The same remark applies to vesicants—primarily of excellent service, secondarily there is danger of sloughing sores.

Internally stimulants, boldly, but with due regard to their ultimate effect.

Thus the alcoholic stimulant, of whatever sort, when acting at all is quite disposed to produce the sedative impression or anæsthetic effect—checking tissue metamorphosis, hence the disappointment so frequently experienced on their administration during the cold stage, or in necræmial cases. The alcohol should be given only in moderate amount and combined with capsicum, piperin, monarda, or similar aromatic stimulants The Ol. Monarda here, as in Asiatic cholera, will be found quite efficient. Or Ethereal preparations, especially the Chloric Ether, in full doses with Sp. Cardamon Comp., Carb. Ammon. and Capsic. in full doses, answers well in some cases.

In our experience, the Tincture of Cantharides in full doses, is perhaps the most valuable of all internal stimulants. From twenty to forty drops every hour, until reaction ensues.

Where there is any appearance of erysipelas, or where there are evidences of dissolution of the blood, as evidenced by the deep livid shade of the spots, or by passive hæmorrhages, the Muriated Tincture of Iron should be simultaneously administered. Coinciding with the general effect of the Cantharides, it seems to especially prevent further destruction of the blood and facilitate its repair. Besides, it lessens the tendency of the Cantharides to injure the kidneys and produce strangury. But the awakening of the nervous system and of the excretory energy as shown by this result is scarely to be considered as other than a favorable omen. Of course, when this occurs, the Cantharides should be replaced by some other stimulant. From ten to twenty drops of the Tincture of Iron should accompany each dose of the Cantharides, and the mixture be largely diluted on exhibition.

If convulsions occur, or pain be dangerously intense, anæsthetics by inhalation may be employed, and we should very much like to try here, as we have not yet had an opportunity, the Protoxide of Nitrogen, or "laughing gas." Theoretically

and by analogy of its use in other cases, we believe it would be found an invaluable remedy. Its energetic stimulating power would probably favor speedy reaction.

We have not noticed any especial advantage from Quinine in the first stage, although we have given it in doses varying from two grains to half a drachm every hour. The stimulating effect of the small dose is inappreciable; the sedative and diaphoretic effect of the large dose is objectionable. But when the deceptive remission occurs, we have fancied some benefit was gained by several full doses, at intervals of one or two hours—the sedative effect seemed to lessen the severity of the subsequent exacerbation, although we have found that a hundred grains thus given, would not prevent its access.

At this time, something appears to be gained by relieving the bowels by a moderately stimulating cathartic, particularly when the cold stage has left behind it decided engorgement of the portal system. By this means the exacerbation is evidently ameliorated, and the tendency to pass afterwards into a low form of fever sensibly lessened. We usually, for this purpose, combine calomel with gamboge, rhubarb and soap, which usually operates efficiently in six or eight hours. Beyond this, or some milder cathartic, we have rarely found it useful to employ purgation. The patient cannot be cured by attempts to turn him inside out with either emetics or cathartics.

If, during the stage of excitement which now follows, the urine becomes tolerably free and charged with its solid constituents, the patient may be reckoned safe, but if it is suppressed the case is one of extreme danger. The practitioner is apt to be deceived by the apparent excitement, and hence to resort to excessive antiphlogistic measures—but this is a dangerous error. Collapse impends almost momentarily, and it is necessary to be on guard.

Saline diuretics, very moderate doses of the usual sedatives, and perhaps anodynes, may be used, but bleeding, vomiting and purging, or large doses of sedatives are out of the question. Ablutions with cold water, or the tepid bath, or show-

ering the head, we have found in this case, even more useful than in the similar stage of remittent.

When in doubt, our own experience teaches us to say, *stimulate* even here. Destructive changes will thus be prevented, the liability to collapse lessened, and the tendency to tedious low fever, with doubtful final result, abated. But better do nothing than to do wrong or mischief.

The subsequent treatment of the disease is sufficiently simple, being merely that of the low fever, modified by such local complications as happen to be present. We have not time to follow up the subject at present. Indeed, we had intended but a few words supplementary to our friend's communication, but have been insensibly led along to a length of remark wholly unexpected.

Will some of our correspondents, where the disease is, or has been prevailing, prepare a communication for our pages on this subject?

PROPOSED MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

We received too late for insertion in the last number, and after the notice which it contained had been written, a call signed by Dr. N. S. Davis, and purporting to be authorized by the "Committee of Arrangements," for a meeting of the American Medical Association, to take place in Chicago on the first Tuesday in June, 1863. On enquiry of some members of said Committee we find they know nothing about said call. The Committee without any authority adjourned the meeting of 1861–1862; and now some of them, equally without authority, have announced a meeting under circumstances quite as unfavorable as have existed in former years.

If a meeting is desired we conceive it devolved upon the State societies, other organized bodies, including teachers in Colleges and Hospitals, to intimate their wishes to that effect. This, as far as we are informed, has not been done in more than one instance.

The Association meeting in June can have no claim to be considered "National," and must if convened but favor the effect of forever perpetuating its sectional character. For ourselves we do not despair of the return of better days, when our brethren now in the army and numerous Union men in the Southern States shall join with their brethren in the North in meetings truly National in their character. We know that some most active in the matter do not share this hope, probably do not desire such a result, but it is a conviction to which we shall cling to the last.

The excitement of civil war is not favorable to the calmness required in scientific meetings. The National Association of Science has thought it wise to suspend its annual assemblage. Several of the State societies have followed its example. From such no representatives can be expected.

The time appointed is peculiarly unfortunate, being the day on which a great "Canal Convention" is to convene in this city. Citizens will be called upon to open their houses for the accommodation of the members of this latter body. Several eminent medical gentlemen will find it necessary to devote most of their time to it. Many will desire to be present to listen to its proceedings. If, therefore, a general attendance is desired, we would suggest that the second Tuesday of June be substituted for the first Tuesday. We make this suggestion in the interest of the profession of the city who will desire to give to their friends a cordial and hospitable reception whenever they may do us the honor of a visit.

D. B.

Editorial in Chicago Medical Journal

HONORS TO THE DEAD.

A meeting of the commissioned officers of the 9th regiment Illinois cavalry, was held at the headquarters of the regiment, Helena, Arkansas, on the 21st of February. A preamble and resolutions, testifying their sincere respect for the late Surgeon Charles Brackett, who died at that place on the 21st, were unanimously passed as follows:

Resolved, That in his death, we have lost not only an accomplished and scientific surgeon, who labored among us with the most self-sacrificing zeal, but a friend endered to us all by his pure and blameless life, and that we will cherish the memory of his good deeds, his great heart, and his earnest truthfulness.

Rssolved, That in his dying words, "I am glad that I have always tried to do right," a rich legacy to his children, we recognize the true character of the man, who from the most exalted patriotism, risked his feeble remnant of life in the service of his country, and died a martyr to his profession and his country's cause.

Resolutions to wear the usual badge of mourning, &c., were adopted.

We take the above notice of the death of Dr. Brackett from the Chicago *Tribune* of the 18th April. The doctor was for many years an occasional contributor to the pages of this Journal, and will be remembered as a writer of unusual originality and clerness. His devotion to the profession was only exceeded by that to his country, whose service he entered at an early period of the war.

Among the thousands of martyrs to the good cause not one was more deserving than he, and the members of the profession will join with the officers of the 9th Illinois Cavalry in marks of regret at his loss and in tenders of sympathy to his friends and family. D. B.

ANN ARBOR, Mich., March 1st, 1863.

MESSRS. EDITORS:

It is said *tempora mutantur et nos mutanur cum illis.* Do not believe it. The times change, but we continue unchanged and totally unmindful of the times. The nation is shattered to fragments—but what matter? We remain blissfully unconscious.

That which was only a rumor last month has since hardened into an event. I have heard that an announcement has been issued by the Chairman of the Com. of Arrangements, of an attempt to organize the *American* Medical Association on a sectional basis. The uneasy gentlemen who attempted this same action in 1861 and 1862, have succeeded thus far in 1863. They are literally seeking to expand their bubble reputation

at the cannon's mouth. Hopeless of achieving more than a contemptible mediocrity in their respective home spheres, they strive to gain an arena where points of order and noise, intrigue and "deportment" may yield a factitious notoriety—easily to be mistaken by the groundlings for fame. We may expect floods of platitudes, and oceans of muddy wisdom. As the patenting of professinal tools of all sorts is prohibited by the code, we may expect to see sundry dray loads of splints, cutlery, stretching apparatus, and diagrams, on the floor, and in the ante-rooms of the Association, so that they may be carried from thence in triumph with its *Imprimatur* upon them.

The ambitious are already pricking up their ears as they read over the names of the offices to be filled. Our *quondam* friend P. is already arranging his glossy curls, and practicing before the mirror the attitudes he will strike and the gestures he will indulge—wondering, meanwhile, whether a Northern audience will be as much astounded to think that one small head could hold all he knew, as of yore, was that which now, alas, has gone away into Dixie's melancholy abyss of secession. Will he make the same speech here in the shadow of the Chicago Platform that he did there? And, if he does, will the Chairman of the Com. take up on that side or the other? But the subject grows upon us, and we forbear, with a few suggestions:

First, That the Com. reconsider their programme and fix the meeting at the same time with the great Canal Convention. This would be likely to ensure a better attendance.

Second, That as these are "ticklish times" and there are many angry men on both sides, each of the delegates be requested to come fully armed. This second suggestion is important, because everybody knows that the inevitable negro, and the war, will be lugged into the first, and probably every, speech made during the session.

Third, That the members who wish to advertise themselves, or their wares, be assessed to pay expenses. If they will travel, let them be voted Pickwickian consent by the Com.

Fourth, That the late President of the Ohio State Medical Society be requested to read his address on retiring from that position, to the Association and as many invited guests as the hall selected will contain. (The only objection to this suggestion is, that the second one above stated might thereby be more imperatively demanded, as a rule of order to the exclusion of the police.)

Fifth, That inasmuch as the exodus of so large a number

of able-bodied men from Eastern and Middle States, which have not supplied their military quotas, to Illinois, which has surpassed its allotment, might be mistaken by the authorities as an attempt to escape the draft,—therefore let no delegates be admitted who have not passed the age of forty-five.

SOJOURNER.

[We beg leave to call the attention of our correspondent to the fact that the meeting is set down for the same day with that of the Grand Canal Convention. We suggest to him to bring along a tent and rations. We will divide our own shelter and food with visitors so far as they will go; but there is a physical limit which even our most expansive benevolence cannot pass.—ED.]

Homœopathy.—A recent graduate from Hahneman College in this city, a resident, we believe, of Sangamon county in this State, immediately after his graduation secured the position of contract surgeon at the Mound City Hospital.

The question arises how came this about? But for him there is no further question. It seems the poor boy really believed the twaddle he had been taught in the College. Soon after his entering upon his duties, he was attacked with "Congestive Chills" (Pernicious Remittent). The second day he died. There was nothing between that death and a long life but a few grains of Quinine. Pained as we always are at the death of young men, we can not after all but think of those soldiers whose lives will be saved from similar attacks ————!

But again we ask who is responsible for this gross outrage upon the profession—and what is beyond and above that, the rights and safety of our brave soldiery?

The Clinics.—Daily Clinics are attended at Rush Medical College, at 3 o'clock P. M. A large number of patients offer themselves for treatment, and the opportunity thus afforded to students is very superior. Our city is increasing so rapidly in population that this department of medical and surgical teaching is rapidly assuming great prominence. The facilities for practical illustration of the nature and treatment of both medical and surgical diseases, the ensuing session of the College, will be increased to a degree heretofore unattained at the West.

A Glimpse of Army Practice.—Elmer Nichols, M. D., of the 118th Ill. Vol., was detailed on the 24th of January to take charge of 328 sick on board the steamer J. C. Swan, *en route* from Vicksburg to St. Louis. From Vicksburg to Memphis they had neither medicines nor hospital stores in noticeable amount, but at Memphis a few supplies were secured. No assistant whatever was allowed him during the whole seven days' trip, notwithstanding he himself was scarcely recovered from recent sickness. So anxious were the regimental surgeons to get rid of their sick, that men were sent on board in an actually dying state. By working sixteen hours *per diem*, he could manage to give each patient an average of *two minutes and some seconds* attendance. *Seventy-six* died on the trip up!

This is the kind of labor imposed on those surgeons who are unhappy enough to wear Major's shoulder straps, and yet the abuse lavished upon them as a class would lead one to think their lives a perpetual holiday, and that they were rioting in luxury and ease.

A New Excretory Function of the Liver.—Prof. A. Flint, Jr., in the *Am. Jour.*, Oct. 1862, discusses the great importance of *Cholesterine* an as excrementitious substance, urging that: "What the discovery of the function of urea has done for diseases which now come under the head of uremia, the discovery of the function of Cholesterine may do for the obscure diseases which may hereafter be classed under the head of Cholesteremia."

In accordance with the opinion of the best physiologists, Prof. F. concludes the bile to be partly excrementitious and partly recrementitious. A series of carefully considered and managed experiments are given, and from their results, taken in connection with those made by other experimenters, he arrives at the following conclusions:

1. Cholesterine exists in the bile, the blood, the nervous matter, the crystalline lens, and the meconium, but does not exist in the feces in ordinary conditions. The quantity of cholesterine in the blood of the arm is from five to ten times more than the ordinary estimate.

2. Cholesterine is formed, in great part if not entirely, in the substance of the nervous matter, where it exists in great abundance, from which it is taken up by the blood, and constitutes one of the most important of the effete or excrementitious products of the body. Its formation is constant, it always existing in the nervous matter and the circulating fluid.

3. Cholesterine is separated from the blood by the liver, appears as a constant element of the bile, and is discharged into the alimentary canal. The history of this substance, in the circulating fluid and in the bile, marks it as a product destined to be gotten rid of by the system, or an excretion. It pre-exists in the blood, subserves no useful purpose in the economy, is separated by the liver and not manufactured there, and, if this separation be interfered with, accumulates in the system, producing blood-poisoning.

4. The bile has two separate and distinct functions dependent on the presence of two elements of an entirely different character. It has a function connected with nutrition. This is dependent on the presence of the glyco-cholate and taurocholate of soda, which do not pre-exist in the blood, subserve a useful purpose in the economy, and are not discharged from it, are manufactured in the liver and peculiar to the bile, do not accumulate in the blood when the function of the liver is interfered with, and are, in short, products of *secretion*. But it has another function connected with depuration, which is dependent on the presence of the cholesterine, which is an *excretion*. The flow of the bile is remittent, being much increased during the digestive act, but produced during the intervals of digestion, for the purpose of separating the cholesterine from the blood which is constantly receiving it.

5. The ordinary normal feces do not contain cholesterine, but contain *stercorine* (formerly called seroline, from its being supposed to exist only in the serum of the blood), produced by a transformation of the cholesterine of the bile during the digestive act.

6. The change of cholesterine into stercorine does not take place when digestion is arrested, or before this process commences; consequently, stercorine is not found in the meconium, or in the feces of hibernating animals during their torpid condition. These matters contain cholesterine in large abundance, which also sometimes appears in the feces of animals after a prolonged fast. Stercorine is the form in which cholesterine is discharged from the body.

7. The difference between the two varieties of jaundice

with which we are familiar, the one characterized only by yellowness of the skin, and comparatively innocuous, while the other is attended with very grave symptoms, and is almost invariably fatal, is dependent upon the obstruction of the bile in the one case, and its suppression in the other. In the first instance, the bile is confined in the excretory passages, and its coloring matter is absorbed, while in the other, the cholesterine is retained in the blood, and acts as a poison.

8. There is a condition of the blood dependent upon the accumulation of cholesterine which I have called *Cholesteremia.* This only occurs when there is structural change in the liver, which incapacitates it from performing its excretory functions. It is characterized by symptoms of a grave character, referable to the brain, and dependent upon the poisonous effects of the retained cholesterine on this organ. It occurs with or without jaundice.

9. Cholesteremia does not occur in every instance of structural disease of the liver. Enough of the liver must be destroyed to prevent the due elimination of the cholesterine. In cases in which the organ is but moderately affected, the sound portion is capable of performing the eliminative function of the whole.

10. In cases of simple jaundice, when the feces are decolorized and the bile is entirely shut off from the intestine, stercorine is not found in the evacuations; but in cases of jaundice with cholesteremia, the stercorine may be found, though always very much diminished in quantity, showing that there is an insufficiency in the separation of the cholesterine from the blood, though its excretion is not entirely suspended. After death, but a small quantity of bile is found in the gall-bladder.

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